Claims

1. A method of radially expanding and plastically deforming an expandable tubular assembly including one or more tubular members, comprising:
coating the interior surfaces of the tubular members with a lubricant;
positioning the tubular members within a preexisting structure; and
radially expanding and plastically deforming the tubular members within the preexisting structure.

2. An apparatus, comprising:
a preexisting structure; and
one or more tubular members radially expanded and plastically deformed within the preexisting structure by the process of:
coating the interior surfaces of the tubular members with a lubricant;
positioning the tubular members within the preexisting structure; and
radially expanding and plastically deforming the tubular members within the preexisting structure.

3. A method of radially expanding and plastically deforming an expandable tubular assembly including one or more tubular members, comprising:
positioning the expandable tubular assembly within a preexisting structure;
injecting a quantity of a lubricant material into contact with the expandable tubular assembly; and
radially expanding and plastically deforming the expandable tubular assembly within the preexisting structure.

4. An apparatus, comprising:
a preexisting structure; and
one or more tubular members radially expanded and plastically deformed within the preexisting structure by the process of:
positioning the tubular members within the preexisting structure;

injecting a quantity of a lubricant material into contact with the tubular members; and
radially expanding and plastically deforming the tubular members within the preexisting structure.

5. A method of radially expanding and plastically deforming an expandable tubular assembly including one or more tubular members within a preexisting structure, comprising:
coating the interior surfaces of the tubular members with a first part of a lubricant;
positioning the tubular members within the preexisting structure;
circulating a fluidic material including a second part of the lubricant into contact with the coating of the first part of the lubricant; and
radially expanding and plastically deforming the tubular members within the preexisting structure.

6. An apparatus, comprising:
a preexisting structure; and
one or more tubular members radially expanded and plastically deformed within the preexisting structure by the process of:
coating the interior surfaces of the tubular members with a first part of a lubricant;
positioning the tubular members within the preexisting structure;
circulating a fluidic materials having a second part of the lubricant into contact with the coating of the first part of the lubricant; and
radially expanding and plastically deforming the tubular members within the preexisting structure.

7. An expandable tubular assembly, comprising:
one or more tubular members; and
a layer of a lubricant coupled to the interior surfaces of the tubular members;
wherein the tubular members comprise wellbore casings; and
wherein the lubricant comprises:
a solvent carrier;

a dry lubricant material; and

an adhesive material.

8. The assembly of claim 7, wherein the lubricant comprises, by weight percentage:

47% to 50% methyl ethyl ketone;

1 to 25%, polytetrafluoroethylene; and

the remainder, an alkyd polymer.

9. An expandable tubular assembly, comprising:

one or more tubular members; and

a layer of a lubricant coupled to the interior surfaces of the tubular members;

wherein the tubular members comprise underground pipes; and

wherein the lubricant comprises:

a solvent carrier;

a dry lubricant material; and

an adhesive material.

10. The assembly of claim 9, wherein the lubricant comprises, by weight percentage:

47% to 50% methyl ethyl ketone;

1 to 25%, polytetrafluoroethylene; and

the remainder, an alkyd polymer.

11. An expandable tubular assembly, comprising:

one or more tubular members; and

a layer of a lubricant coupled to the interior surfaces of the tubular members;

wherein the tubular members comprise structural supports; and

wherein the lubricant comprises:

a solvent carrier;

a dry lubricant material; and

an adhesive material.

12. The assembly of claim 11, wherein the lubricant comprises, by weight percentage:

47% to 50% methyl ethyl ketone;

1 to 25%, polytetrafluoroethylene; and

the remainder, an alkyd polymer.

13. An expandable tubular assembly, comprising:

one or more tubular members; and

a layer of a lubricant coupled to the interior surfaces of the tubular members;

wherein the lubricant comprises:

a solvent carrier;

a dry lubricant material; and

an adhesive material.

14. The assembly of claim 13, wherein the lubricant comprises, by weight percentage:

47% to 50% methyl ethyl ketone;

1 to 25%, polytetrafluoroethylene; and

the remainder, an alkyd polymer.

15. A lubricant, comprising, by weight percentage:

40-80% epoxy resin, 15-30% molybdenum disulfide, 10-15% graphite, 5-10% aluminum, 5-10% copper, 8-15% alumisilicate, and 5-10% polyethylenepolyamine.

16. A lubricant, comprising:

a solvent carrier;

a dry lubricant material; and

an adhesive material.

17. A lubricant, comprising, by weight percentage:

47% to 50% methyl ethyl ketone;
1 to 25%, polytetrafluoroethylene; and
the remainder, an alkyd polymer.

18. The method of claim 1, wherein the tubular members comprise wellbore casings.

19. The method of claim 1, wherein the tubular members comprise underground pipes.

20. The method of claim 1, wherein the tubular members comprise structural supports.

21. The method of claim 1, wherein the coating of lubricant is chemically bonded to the interior surfaces of the tubular members.

22. The method of claim 1, wherein the coating of lubricant is mechanically bonded to the interior surfaces of the tubular members.

23. The method of claim 1, wherein the coating of lubricant is adhesively bonded to the interior surfaces of the tubular members.

24. The method of claim 1, wherein the coating of lubricant includes:
a primer coating coupled to the interior surfaces of the tubular members; and
a coating of an antifriction paste coupled to the primer.

25. The method of claim 1, wherein the coating of lubricant includes, by weight:
40-80% epoxy resin, 15-30% molybdenum disulfide, 10-15% graphite, 5-10% aluminum, 5-10% copper, 8-15% alumisilicate, and 5-10% polyethylenepolyamine.

26. The method of claim 1, wherein the coating of lubricant comprises a metallic soap.

27. The method of claim 1, wherein the coating of lubricant comprises zinc phosphate.

28. The method of claim 1, wherein the coating of lubricant provides a coefficient of dynamic friction of between about 0.08 to 0.1.

29. The method of claim 1, wherein the coating of lubricant is selected from the group consisting of:

sodium stearates, calcium stearates, zinc stearates, zinc phosphate, manganese phosphate, C-Lube-10, C-Phos-58-M, C-Phos-58-R, polytetrafluoroethylene, molybdenum disulfide, and metallic soaps.

30. The method of claim 1, wherein the coating of lubricant provides a sliding coefficient of friction less than about 0.20.

31. The method of claim 1, wherein the coating of lubricant is selected from the group consisting of:

polyacrylamide polymers, AMPS-acrylamide copolymers, modified cellulose derivatives, hydroxyethylcellulose, carboxymethyl hydroxyethyl cellulose, polyvinyl alcohol polymers, polyvinyl acetate polymers, polyvinyl alcohol acetate copolymers, polyvinyl vinyl acetate copolymers, polyvinyl pyrrolidone and copolymers including polyolefins, latexes, styrene butadiene latex, urethane latexes, styrene-maleic annhydride copolymers, viscosity index improvers for motor oils, polyacrylate esters, block copolymers including styrene, block copolymers including isoprene butadiene, block copolymers including ethylene, and ethylene acrylic acid copolymers.

32. The method of claim 1, wherein the coating of lubricant is selected from the group consisting of:

graphite, molybdenum disulfide, lead powder, antimony oxide, poly tetrafluoroethylene, and silicone polymers.

33. The method of claim 1, wherein the coating of lubricant comprises:

a solid lubricant; and

a binder.

34. The method of claim 33, wherein the binder is selected from the group consisting of:
epoxy, acrylic, urea-formaldehyde, melamine formaldehyde, furan based resin, acetone formaldehyde, phenolic, alkyd resins, and silicone modified alkyd resin.

35. The method of claim 33, wherein the binder is selected from the group consisting of:
vinyl acetate, vinyl chloride, maleic annhydride, maleic acid, ethylene-acrylic acid copolymers, ethylene-methacrylic acid copolymers, and ethylene-vinyl acetate copolymers.

36. The method of claim 1, wherein the coating of lubricant comprises a suspension of particles in a carrier solvent.

37. The method of claim 1, the coating of lubricant is selected from the group consisting of:
manganese phosphate, zinc phosphate, and iron phosphate.

38. The method of claim 1, wherein the coating of lubricant comprises:
about 1 to 90 percent solids by volume.

39. The method of claim 38, wherein the coating of lubricant comprises:
about 5 to 70 percent solids by volume.

40. The method of claim 38, wherein the coating of lubricant comprises:
about 15 to 50 percent solids by volume.

41. The method of claim 1, wherein the coating of lubricant comprises:
about 5 to 80 percent graphite;

about 5 to 80 percent molybdenum disulfide;
about 1 to 40 percent PTFE; and
about 1 to 40 percent silicone polymers.

42. The method of claim 1, wherein the coating of lubricant comprises one or more of the following:
ester;
sulfurized oil;
alkanolamides;
amine;
amine salt;
olefin;
polyolefins;
C-8 to C-18 linear alcohol;
derivative of C-8 to C-18 linear alcohol including ester;
derivative of C-8 to C-18 linear alcohol including amine;
derivative of C-8 to C-18 linear alcohol including carboxylate;
sulfonate;
polyethylene glycol;
silicone;
siloxane;
dinonyl phenol;
ethylene oxide block copolymer; and
propylene oxide block copolymer.

43. The apparatus of claim 2, wherein the tubular members comprise wellbore casings.

44. The apparatus of claim 2, wherein the tubular members comprise underground pipes.

45. The apparatus of claim 2, wherein the tubular members comprise structural supports.

46. The apparatus of claim 2, wherein the coating of lubricant is chemically bonded to the interior surfaces of the tubular members.

47. The apparatus of claim 2, wherein the coating of lubricant is mechanically bonded to the interior surfaces of the tubular members.

48. The apparatus of claim 2, wherein the coating of lubricant is adhesively bonded to the interior surfaces of the tubular members.

49. The apparatus of claim 2, wherein the coating of lubricant includes:
a primer coating coupled to the interior surfaces of the tubular members; and
a coating of an antifriction paste coupled to the primer.

50. The apparatus of claim 2, wherein the coating of lubricant includes, by weight:
40-80% epoxy resin, 15-30% molybdenum disulfide, 10-15% graphite, 5-10% aluminum, 5-10% copper, 8-15% alumisilicate, and 5-10% polyethylenepolyamine.

51. The apparatus of claim 2, wherein the coating of lubricant comprises a metallic soap.

52. The apparatus of claim 2, wherein the coating of lubricant comprises zinc phosphate.

53. The apparatus of claim 2, wherein the coating of lubricant provides a coefficient of dynamic friction of between about 0.08 to 0.1.

54. The apparatus of claim 2, wherein the coating of lubricant is selected from the group consisting of:

sodium stearates, calcium stearates, zinc stearates, zinc phosphate, manganese phosphate, C-Lube-10, C-Phos-58-M, C-Phos-58-R, polytetrafluoroethylene, molybdenum disulfide, and metallic soaps.

55. The apparatus of claim 2, wherein the coating of lubricant provides a sliding coefficient of friction less than about 0.20.

56. The apparatus of claim 2, wherein the coating of lubricant is selected from the group consisting of:

polyacrylamide polymers, AMPS-acrylamide copolymers, modified cellulose derivatives, hydroxyethylcellulose, carboxymethyl hydroxyethyl cellulose, polyvinyl alcohol polymers, polyvinyl acetate polymers, polyvinyl alcohol acetate copolymers, polyvinyl vinyl acetate copolymers, polyvinyl pyrrolidone and copolymers including polyolefins, latexes, styrene butadiene latex, urethane latexes, styrene-maleic annhydride copolymers, viscosity index improvers for motor oils, polyacrylate esters, block copolymers including styrene, block copolymers including isoprene butadiene, block copolymers including ethylene, and ethylene acrylic acid copolymers.

57. The apparatus of claim 2, wherein the coating of lubricant is selected from the group consisting of:

graphite, molybdenum disulfide, lead powder, antimony oxide, poly tetrafluoroethylene, and silicone polymers.

58. The apparatus of claim 2, wherein the coating of lubricant comprises:

a solid lubricant; and

a binder.

59. The apparatus of claim 58, wherein the binder is selected from the group consisting of:
epoxy, acrylic, urea-formaldehyde, melamine formaldehyde, furan based resin, acetone formaldehyde, phenolic, alkyd resins, and silicone modified alkyd resin.

60. The apparatus of claim 58, wherein the binder is selected from the group consisting of:
vinyl acetate, vinyl chloride, maleic annhydride, maleic acid, ethylene-acrylic acid copolymers, ethylene-methacrylic acid copolymers, and ethylene-vinyl acetate copolymers.

61. The apparatus of claim 2, wherein the coating of lubricant comprises a suspension of particles in a carrier solvent.

62. The apparatus of claim 2, the coating of lubricant is selected from the group consisting of:
manganese phosphate, zinc phosphate, and iron phosphate.

63. The apparatus of claim 2, wherein the coating of lubricant comprises:
about 1 to 90 percent solids by volume.

64. The apparatus of claim 63, wherein the coating of lubricant comprises:
about 5 to 70 percent solids by volume.

65. The apparatus of claim 63, wherein the coating of lubricant comprises:
about 15 to 50 percent solids by volume.

66. The apparatus of claim 2, wherein the coating of lubricant comprises:
about 5 to 80 percent graphite;
about 5 to 80 percent molybdenum disulfide;
about 1 to 40 percent PTFE; and

about 1 to 40 percent silicone polymers.

67. The apparatus of claim 2, wherein the coating of lubricant comprises one or more of the following:
ester;
sulfurized oil;
alkanolamides;
amine;
amine salt;
olefin;
polyolefins;
C-8 to C-18 linear alcohol;
derivative of C-8 to C-18 linear alcohol including ester;
derivative of C-8 to C-18 linear alcohol including amine;
derivative of C-8 to C-18 linear alcohol including carboxylate;
sulfonate;
polyethylene glycol;
silicone;
siloxane;
dinonyl phenol;
ethylene oxide block copolymer; and
propylene oxide block copolymer.

68. The method of claim 3, wherein the tubular members comprise wellbore casings.

69. The method of claim 3, wherein the tubular members comprise underground pipes.

70. The method of claim 3, wherein the tubular members comprise structural supports.

71. The method of claim 3, wherein the lubricant comprises a metallic soap.

72. The method of claim 3, wherein the lubricant comprises zinc phosphate.

73. The method of claim 3, wherein the lubricant provides a coefficient of dynamic friction of between about 0.08 to 0.1.

74. The method of claim 3, wherein the lubricant is selected from the group consisting of:

sodium stearates, calcium stearates, zinc stearates, zinc phosphate, manganese phosphate, C-Lube-10, C-Phos-58-M, C-Phos-58-R, polytetrafluoroethylene, molybdenum disulfide, and metallic soaps.

75. The method of claim 3, wherein the lubricant provides a sliding coefficient of friction less than about 0.20.

76. The method of claim 3, wherein the lubricant is selected from the group consisting of:

polyacrylamide polymers, AMPS-acrylamide copolymers, modified cellulose derivatives, hydroxyethylcellulose, carboxymethyl hydroxyethyl cellulose, polyvinyl alcohol polymers, polyvinyl acetate polymers, polyvinyl alcohol acetate copolymers, polyvinyl vinyl acetate copolymers, polyvinyl pyrrolidone and copolymers including polyolefins, latexes, styrene butadiene latex, urethane latexes, styrene-maleic annhydride copolymers, viscosity index improvers for motor oils, polyacrylate esters, block copolymers including styrene, block copolymers including isoprene butadiene, block copolymers including ethylene, and ethylene acrylic acid copolymers.

77. The method of claim 3, wherein the lubricant is selected from the group consisting of:

graphite, molybdenum disulfide, lead powder, antimony oxide, poly tetrafluoroethylene, and silicone polymers.

78. The method of claim 3, wherein the lubricant comprises a suspension of particles in a carrier solvent.

79. The method of claim 3, wherein the lubricant is selected from the group consisting of:
manganese phosphate, zinc phosphate, and iron phosphate.

80. The method of claim 3, wherein the lubricant comprises:
about 1 to 90 percent solids by volume.

81. The method of claim 80, wherein the lubricant comprises:
about 5 to 70 percent solids by volume.

82. The method of claim 80, wherein the lubricant comprises:
about 15 to 50 percent solids by volume.

83. The method of claim 3, wherein the lubricant comprises:
about 5 to 80 percent graphite;
about 5 to 80 percent molybdenum disulfide;
about 1 to 40 percent PTFE; and
about 1 to 40 percent silicone polymers.

84. The method of claim 3, wherein the lubricant comprises one or more of the following:
ester;
sulfurized oil;
alkanolamides;
amine;
amine salt;
olefin;
polyolefins;

C-8 to C-18 linear alcohol;
derivative of C-8 to C-18 linear alcohol including ester;
derivative of C-8 to C-18 linear alcohol including amine;
derivative of C-8 to C-18 linear alcohol including carboxylate;
sulfonate;
polyethylene glycol;
silicone;
siloxane;
dinonyl phenol;
ethylene oxide block copolymer; and
propylene oxide block copolymer.

85. The apparatus of claim 4, wherein the tubular members comprise wellbore casings.

86. The apparatus of claim 4, wherein the tubular members comprise underground pipes.

87. The apparatus of claim 4, wherein the tubular members comprise structural supports.

88. The apparatus of claim 4, wherein the lubricant comprises a metallic soap.

89. The apparatus of claim 4, wherein the lubricant comprises zinc phosphate.

90. The apparatus of claim 4, wherein the lubricant provides a coefficient of dynamic friction of between about 0.08 to 0.1.

91. The apparatus of claim 4, wherein the lubricant is selected from the group consisting of:

sodium stearates, calcium stearates, zinc stearates, zinc phosphate, manganese phosphate, C-Lube-10, C-Phos-58-M, C-Phos-58-R, polytetrafluoroethylene, molybdenum disulfide, and metallic soaps.

92. The apparatus of claim 4, wherein the lubricant provides a sliding coefficient of friction less than about 0.20.

93. The apparatus of claim 4, wherein the lubricant is selected from the group consisting of:

polyacrylamide polymers, AMPS-acrylamide copolymers, modified cellulose derivatives, hydroxyethylcellulose, carboxymethyl hydroxyethyl cellulose, polyvinyl alcohol polymers, polyvinyl acetate polymers, polyvinyl alcohol acetate copolymers, polyvinyl vinyl acetate copolymers, polyvinyl pyrrolidone and copolymers including polyolefins, latexes, styrene butadiene latex, urethane latexes, styrene-maleic annhydride copolymers, viscosity index improvers for motor oils, polyacrylate esters, block copolymers including styrene, block copolymers including isoprene butadiene, block copolymers including ethylene, and ethylene acrylic acid copolymers.

94. The apparatus of claim 4, wherein the lubricant is selected from the group consisting of:

graphite, molybdenum disulfide, lead powder, antimony oxide, poly tetrafluoroethylene, and silicone polymers.

95. The apparatus of claim 4, wherein the lubricant comprises a suspension of particles in a carrier solvent.

96. The apparatus of claim 4, wherein the lubricant is selected from the group consisting of:

manganese phosphate, zinc phosphate, and iron phosphate.

97. The apparatus of claim 4, wherein the lubricant comprises:
about 1 to 90 percent solids by volume.

98. The apparatus of claim 97, wherein the lubricant comprises:
about 5 to 70 percent solids by volume.

99. The apparatus of claim 97, wherein the lubricant comprises:
about 15 to 50 percent solids by volume.

100. The apparatus of claim 4, wherein the lubricant comprises:
about 5 to 80 percent graphite;
about 5 to 80 percent molybdenum disulfide;
about 1 to 40 percent PTFE; and
about 1 to 40 percent silicone polymers.

101. The apparatus of claim 4, wherein the lubricant comprises one or more of the following:
ester;
sulfurized oil;
alkanolamides;
amine;
amine salt;
olefin;
polyolefins;
C-8 to C-18 linear alcohol;
derivative of C-8 to C-18 linear alcohol including ester;
derivative of C-8 to C-18 linear alcohol including amine;
derivative of C-8 to C-18 linear alcohol including carboxylate;
sulfonate;
polyethylene glycol;
silicone;

siloxane;
dinonyl phenol;
ethylene oxide block copolymer; and
propylene oxide block copolymer.

102. The method of claim 5, wherein the tubular members comprise wellbore casings.

103. The method of claim 5, wherein the tubular members comprise underground pipes.

104. The method of claim 5, wherein the tubular members comprise structural supports.

105. The method of claim 5, wherein the lubricant comprises a metallic soap.

106. The method of claim 5, wherein the lubricant comprises zinc phosphate.

107. The method of claim 5, wherein the lubricant provides a coefficient of dynamic friction of between about 0.08 to 0.1.

108. The method of claim 5, wherein the lubricant is selected from the group consisting of:
sodium stearates, calcium stearates, zinc stearates, zinc phosphate, manganese phosphate, C-Lube-10, C-Phos-58-M, C-Phos-58-R, polytetrafluoroethylene, molybdenum disulfide, and metallic soaps.

109. The method of claim 5, wherein the lubricant provides a sliding coefficient of friction less than about 0.20.

110. The method of claim 5, wherein the lubricant is selected from the group consisting of:

polyacrylamide polymers, AMPS-acrylamide copolymers, modified cellulose derivatives, hydroxyethylcellulose, carboxymethyl hydroxyethyl cellulose, polyvinyl alcohol polymers, polyvinyl acetate polymers, polyvinyl alcohol acetate copolymers, polyvinyl vinyl acetate copolymers, polyvinyl pyrrolidone and copolymers including polyolefins, latexes, styrene butadiene latex, urethane latexes, styrene-maleic annhydride copolymers, viscosity index improvers for motor oils, polyacrylate esters, block copolymers including styrene, block copolymers including isoprene butadiene, block copolymers including ethylene, and ethylene acrylic acid copolymers.

111. The method of claim 5, wherein the lubricant is selected from the group consisting of:
graphite, molybdenum disulfide, lead powder, antimony oxide, poly tetrafluoroethylene, and silicone polymers.

112. The method of claim 5, wherein the lubricant comprises a suspension of particles in a carrier solvent.

113. The method of claim 5, wherein the lubricant is selected from the group consisting of:
manganese phosphate, zinc phosphate, and iron phosphate.

114. The method of claim 5, wherein the lubricant comprises:
about 1 to 90 percent solids by volume.

115. The method of claim 114, wherein the lubricant comprises:
about 5 to 70 percent solids by volume.

116. The method of claim 114, wherein the lubricant comprises:
about 15 to 50 percent solids by volume.

117. The method of claim 5, wherein the lubricant comprises:
about 5 to 80 percent graphite;
about 5 to 80 percent molybdenum disulfide;
about 1 to 40 percent PTFE; and
about 1 to 40 percent silicone polymers.

118. The method of claim 5, wherein the lubricant comprises one or more of the following:
ester;
sulfurized oil;
alkanolamides;
amine;
amine salt;
olefin;
polyolefins;
C-8 to C-18 linear alcohol;
derivative of C-8 to C-18 linear alcohol including ester;
derivative of C-8 to C-18 linear alcohol including amine;
derivative of C-8 to C-18 linear alcohol including carboxylate;
sulfonate;
polyethylene glycol;
silicone;
siloxane;
dinonyl phenol;
ethylene oxide block copolymer; and
propylene oxide block copolymer.

119. The apparatus of claim 6, wherein the tubular members comprise wellbore casings.

120. The apparatus of claim 6, wherein the tubular members comprise underground pipes.

121. The apparatus of claim 6, wherein the tubular members comprise structural supports.

122. The apparatus of claim 6, wherein the lubricant comprises a metallic soap.

123. The apparatus of claim 6, wherein the lubricant comprises zinc phosphate.

124. The apparatus of claim 6, wherein the lubricant provides a coefficient of dynamic friction of between about 0.08 to 0.1.

125. The apparatus of claim 6, wherein the lubricant is selected from the group consisting of:

sodium stearates, calcium stearates, zinc stearates, zinc phosphate, manganese phosphate, C-Lube-10, C-Phos-58-M, C-Phos-58-R, polytetrafluoroethylene, molybdenum disulfide, and metallic soaps.

126. The apparatus of claim 6, wherein the lubricant provides a sliding coefficient of friction less than about 0.20.

127. The apparatus of claim 6, wherein the lubricant is selected from the group consisting of:

polyacrylamide polymers, AMPS-acrylamide copolymers, modified cellulose derivatives, hydroxyethylcellulose, carboxymethyl hydroxyethyl cellulose, polyvinyl alcohol polymers, polyvinyl acetate polymers, polyvinyl alcohol acetate copolymers, polyvinyl vinyl acetate copolymers, polyvinyl pyrrolidone and copolymers including polyolefins, latexes, styrene butadiene latex, urethane latexes, styrene-maleic annhydride copolymers, viscosity index improvers for motor oils, polyacrylate esters, block copolymers including styrene, block copolymers

including isoprene butadiene, block copolymers including ethylene, and ethylene acrylic acid copolymers.

128. The apparatus of claim 6, wherein the lubricant is selected from the group consisting of:
graphite, molybdenum disulfide, lead powder, antimony oxide, poly tetrafluoroethylene, and silicone polymers.

129. The apparatus of claim 6, wherein the lubricant comprises a suspension of particles in a carrier solvent.

130. The apparatus of claim 6, wherein the lubricant is selected from the group consisting of:
manganese phosphate, zinc phosphate, and iron phosphate.

131. The apparatus of claim 6, wherein the lubricant comprises:
about 1 to 90 percent solids by volume.

132. The apparatus of claim 131, wherein the lubricant comprises:
about 5 to 70 percent solids by volume.

133. The apparatus of claim 131, wherein the lubricant comprises:
about 15 to 50 percent solids by volume.

134. The apparatus of claim 6, wherein the lubricant comprises:
about 5 to 80 percent graphite;
about 5 to 80 percent molybdenum disulfide;
about 1 to 40 percent PTFE; and
about 1 to 40 percent silicone polymers.

135. The apparatus of claim 6, wherein the lubricant comprises one or more of the following:
ester;
sulfurized oil;
alkanolamides;
amine;
amine salt;
olefin;
polyolefins;
C-8 to C-18 linear alcohol;
derivative of C-8 to C-18 linear alcohol including ester;
derivative of C-8 to C-18 linear alcohol including amine;
derivative of C-8 to C-18 linear alcohol including carboxylate;
sulfonate;
polyethylene glycol;
silicone;
siloxane;
dinonyl phenol;
ethylene oxide block copolymer; and
propylene oxide block copolymer.

136. A method of radially expanding and plastically deforming an expandable tubular assembly including a plurality of tubular members coupled end to end, comprising:
coating the interior surfaces of the tubular members with a lubricant; and
radially expanding and plastically deforming the tubular members.

137. An apparatus, comprising:
a plurality of tubular members coupled end to end and radially expanded and plastically deformed by the process of:
coating the interior surfaces of the tubular members with a lubricant; and

radially expanding and plastically deforming the tubular members within the preexisting structure.

138. A method of radially expanding and plastically deforming an expandable tubular assembly including a plurality of tubular members coupled end to end, comprising:
injecting a quantity of a lubricant material into contact with the expandable tubular assembly; and
radially expanding and plastically deforming the expandable tubular assembly.

139. An apparatus, comprising:
a plurality of tubular members coupled end or end and radially expanded and plastically deformed within the preexisting structure by the process of:
injecting a quantity of a lubricant material into contact with the tubular members; and
radially expanding and plastically deforming the tubular members.

140. A method of radially expanding and plastically deforming an expandable tubular assembly including a plurality of tubular members coupled end to, comprising:
coating the interior surfaces of the tubular members with a first part of a lubricant;
circulating a fluidic material including a second part of the lubricant into contact with the coating of the first part of the lubricant; and
radially expanding and plastically deforming the tubular members.

141. An apparatus, comprising:
a plurality of tubular members coupled end to end and radially expanded and plastically deformed by the process of:
coating the interior surfaces of the tubular members with a first part of a lubricant;
circulating a fluidic materials having a second part of the lubricant into contact with the coating of the first part of the lubricant; and
radially expanding and plastically deforming the tubular members.

142. A method of radially expanding and plastically deforming an expandable tubular assembly including one or more tubular members, comprising:
coating the interior surfaces of the tubular members with a first part of a lubricant;
circulating a fluidic material including a second part of the lubricant into contact with the coating of the first part of the lubricant; and
radially expanding and plastically deforming the tubular members.

143. An apparatus, comprising:
one or more tubular members radially expanded and plastically deformed by the process of:
coating the interior surfaces of the tubular members with a first part of a lubricant;
circulating a fluidic materials having a second part of the lubricant into contact with the coating of the first part of the lubricant; and
radially expanding and plastically deforming the tubular members.

144. A lubrication system for lubricating an interface between an expansion device and a tubular member and the expansion device during the radial expansion and plastic deformation of the tubular member using the expansion device, comprising:
means for providing boundary lubrication; and
means for providing hydrodynamic lubrication.

145. A method of lubricating an interface between an expansion device and a tubular member and the expansion device during the radial expansion and plastic deformation of the tubular member using the expansion device, comprising:
providing boundary lubrication; and
providing hydrodynamic lubrication.

146. A lubrication system for lubricating an interface between an expansion device and a tubular member and the expansion device during the radial expansion and plastic deformation of the tubular member using the expansion device, comprising:
means for providing extreme pressure lubrication; and

means for providing hydrodynamic lubrication.

147. A method of lubricating an interface between an expansion device and a tubular member and the expansion device during the radial expansion and plastic deformation of the tubular member using the expansion device, comprising:

providing extreme pressure lubrication; and

providing hydrodynamic lubrication.

148. A lubricant, comprising, by weight percentage:

40% alkyd resin;

20% titanium dioxide;

1% calcium silicate;

22% methyl ethyl ketone;

15% polytetrafluoroethylene;

1% driers; and

1% levelers.

149. The assembly of claim 7, wherein the lubricant comprises, by weight percentage:

40% alkyd resin;

20% titanium dioxide;

1% calcium silicate;

22% methyl ethyl ketone;

15% polytetrafluoroethylene;

1% driers; and

1% levelers.

150. The assembly of claim 9, wherein the lubricant comprises, by weight percentage:

40% alkyd resin;

20% titanium dioxide;

1% calcium silicate;

22% methyl ethyl ketone;

15% polytetrafluoroethylene;
1% driers; and
1% levelers.

151. The assembly of claim 11, wherein the lubricant comprises, by weight percentage:
40% alkyd resin;
20% titanium dioxide;
1% calcium silicate;
22% methyl ethyl ketone;
15% polytetrafluoroethylene;
1% driers; and
1% levelers.

152. The assembly of claim 13, wherein the lubricant comprises, by weight percentage:
40% alkyd resin;
20% titanium dioxide;
1% calcium silicate;
22% methyl ethyl ketone;
15% polytetrafluoroethylene;
1% driers; and
1% levelers.